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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,390	08/29/2003	Adeana Richelle Bishop	MDM-0307	3586

7590 11/30/2006

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EXAMINER	
SINGH, PREM C	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/652,390	BISHOP ET AL.	
	Examiner	Art Unit	
	Prem C. Singh	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-12,14-19,21-42,44-52,54-59 and 61-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-12,14-19,21-42,44-52,54-59 and 61-64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/04/2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1).

Duprey invention discloses that the catalyst composition used in the present invention comprises a hydrogenation component, a surface aluminated aluminosilicate zeolite crystallites and a low acidity refractory oxide binder material which is essentially free of alumina (Page 5, lines 24-29). Examples of aluminosilicate zeolites are aluminosilicates mordenite, zeolite beta, ferrierite, ZSM-11, ZSM-5, ZSM-22, ZSM-23, ZSM-35, ZSM-38, ZSM-48, ZSM-57, SSZ-23, SSZ-24, SSZ-25, SSZ-26, SSZ-32, SSZ-33, and MCM-22 and mixtures of two or more of these (Page 6, lines 3-8). A good base

oil product can be prepared when a catalyst is used containing ZSM-12 (Page 6, lines 9-11).

Duprey invention further discloses that the hydrogenation component suitably comprises at least one group VI B metal component and/or at least one group VIII metal component (Page 9, lines 11-13). Group VIII metal components include those components based on both noble and non-noble metals. Particularly suitable group VIII metal components accordingly, are palladium, platinum, nickel, and/or cobalt in sulfidic, oxidic, and/or elemental form (Page 9, lines 20-24).

Duprey invention does not specifically mention that the molecular sieve contains at least one 10 or 12 ring channel. Since Duprey invention uses similar molecular sieve as claimed by the applicant, inherently, it must have at least one 10 or 12 ring channel.

Duprey invention does not disclose treatment of dewaxing catalyst with a stream containing one or more oxygenates.

Duprey invention does not disclose the details of FT catalyst and synthesis.

Duprey invention does not disclose alumina binder for the dewaxing catalyst.

Borghard invention discloses that the zeolite beta may be composited with a matrix material to form the finished catalyst and for this purpose conventional non-acidic matrix material such as alumina silica-alumina and silica are suitable with preference given to silica as a non-acidic binder, although non-acidic aluminas such as alpha

boehmite may also be used (Page 7, lines 21-27). If the catalyst is to be steamed in order to achieve the desired low acidity, it is performed after the catalyst has been formulated with the binder, as is conventional (Page 8, lines 3-6). Steaming typically utilizes an atmosphere of 100% steam, at a temperature of 430 to 590°C and is normally carried out for 12 to 48 hours in order to obtain the desired reduction in acidity (Page 8, lines 23-27).

Borghard invention further discloses that the feed for the present conversion process is obtained by means of the FT synthesis, in which synthesis gas, comprising hydrogen and carbon monoxide is passed over a suitable catalyst under conditions of elevated temperature and pressure. The catalyst used is typically a metal or a metal oxide with iron, cobalt, nickel, ruthenium, thorium, rhodium, or osmium being preferred. Temperatures are typically in the range of 150 to 500°C and pressures of 100 to 100,000 kPa (Page 3, lines 20-30).

It would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Duprey and Borghard inventions and treat the catalyst with steam to reduce its acidity and make more useful for the dewaxing process. It is to be noted that steam (H-OH) is an oxygenate.

It would have been obvious to use FT catalyst disclosed in Borghard invention in Duprey process because both are using FT product for hydrodewaxing.

It would have been obvious to modify Duprey invention by using alumina binder disclosed in Borghard invention because both are functionally similar and alumina binder is cheaper.

Claims 14-26, 28, 30-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1).

Duprey invention discloses a simple process which yields base oil products having a high viscosity index and a low pour point. This object is achieved by the following process. Process for preparing a lubricating base oil by contacting a synthetic wax, which wax is obtained by a Fischer-Tropsch (FT) process and has not been subjected to a hydroisomerization treatment, with a catalyst composition comprising at least a hydrogenation component, dealuminated aluminosilicate zeolite crystallites and a low acidity refractory oxide binder material which is essentially free of alumina (Page 2, lines 21-33). The FT process converts synthesis gas to a FT product comprising gaseous and liquid hydrocarbons and a FT wax (Page 3, lines 17-19). The FT product does not contain the sulfur, nitrogen or metal impurities normally found in crude oil, but is known to contain water, trace metals, and a number of unsaturated compounds and oxygenate compounds such as alcohols, ketones, aldehydes, etc. (Page 3, lines 21-26). The invention is also directed to a process to prepare a lubricating base oil as described above by performing at least the following steps (Page 5, lines 1-3). Preferred

embodiments of the above-described process are apparent from the description and include embodiments in which lower boiling fuel products are prepared next to the lubricating base oil product. The lower boiling fuels are prepared starting from the FT product from which all or part of the FT wax has been separated in step (c) which are subjected an optional hydrotreating step followed by a hydroisomerization step and a fractionation step (Page 5, lines 14-23). Catalytic dewaxing involve operating temperatures in the range of from 200 to 500°C, preferably from 250 to 400°C, hydrogen pressures in the range of from 10 to 200 bar, preferably from 15 to 100 bar, more preferably from 15 to 65 bar, weight hourly space velocities in the range of from 0.1 to 10 kg oil per liter of catalyst per hour (kg/l/hr) and hydrogen to oil ratios in the range of from 100 to 2,000 liters of hydrogen per liter of oil (Page 10, lines 7-16). The catalyst was activated by reduction of the platinum under a hydrogen rate of 100 l/hr at a temperature of 350°C for 2 hours (Page 12, lines 6-8). A FT wax which has been subjected to a hydrotreatment in order to reduce the oxygen content to below 500 ppmw as molecular oxygen, but which has not been subjected to a hydroisomerization treatment having the properties listed in Table I (Page 12, lines 12-16).

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1) and further in view of Ziemer (US Patent 4,867,862).

Duprey and Borghard inventions do not disclose dehazing of the stock.

Ziemer invention discloses a single stage, multi-layered catalyst system for hydrodehazing and hydrofinishing a hydrocracked, solvent dewaxed lube oil base stock (Column 1, lines 6-9).

Although Ziemer is using a stock from a hydrocracking unit, it would have been obvious to one skilled in the art at the time the invention was made to combine Duprey, Borghard, and Ziemer inventions and dehaze the stock for a better quality lubricant.

Claims 29 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1) and further in view of Derr, Jr. et al (US Patent 4,684,756).

Duprey and Borghard inventions do not mention about a non-shifting FT catalyst.

Derr invention discloses conversion of relatively low H_2/CO ratio syngas (1/1 or less H_2/CO ratio) wherein it is essential that the CO reducing catalyst used include water-gas shift activity or be characterized so that steam formed in the FT operation will react with charged CO to form H_2. Examples of CO reducing catalysts having shift activity are iron alone, or iron, cobalt or ruthenium provided with an added shift catalyst component. Shift catalysts suitable for the process include those containing the elements Fe, Cr, Zn, Cu, or K (Column 2, lines 46-55).

Since Duprey and Borghard inventions do not mention about shift activity, it would have been obvious to use a non-shift catalyst, because shift reaction is not intended in their inventions as they are treating the FT products for dewaxing operation.

Response to Arguments

The Applicant argues that Duprey makes no such disclosure or suggestion towards (1) reducing a Group VIII metal component and (2) treating the reduced catalyst with a hydrocarbon stream containing at least 100 wppm oxygenates. The Applicant further argues that contacting Duprey's reduced but untreated catalyst with an FT wax under hydroisomerization conditions does not lead to or suggest Applicant's catalyst.

The Applicant's argument is not persuasive as mentioned in the last Office action dated 07/14/2006 (Page 9, paragraph 3).

The Applicant argues that there clearly is no disclosure or suggestion in Borghard of reducing his calcined material followed by treatment with a hydrocarbon stream containing oxygenates.

The Applicant's argument is not persuasive because Borghard discloses steaming the catalyst (which the Applicant refers to as reduction) (see page 8, lines 22-31). This catalyst is then used for dewaxing Fischer-Tropsch (FT) product which inherently has oxygenates (see page 13, lines 2-6).

The Applicant argues that Duprey makes no such suggestion of the significant benefits resulting from dewaxing an F-T wax that is produced over a non-cobalt catalyst by using applicants' catalyst. The same comments are equally applicable to Borghard.

The Applicant's argument is not persuasive because Duprey does disclose FT process using ruthenium, iron or cobalt catalyst (see page 1, lines 4-10). Similarly, Borghard also discloses FT synthesis using iron, cobalt, nickel, ruthenium, thorium, rhodium, or osmium catalysts (see page 3, lines 24-27). Obviously, FT synthesis can be conducted using any catalyst disclosed by Duprey or Borghard. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Duprey invention and use only non-cobalt catalyst because it will be equally effective as any other catalysts disclosed by Duprey or Borghard.

The Applicant argues that Derr does not teach hydrodewaxing but teaches cracking, which both Duprey and Borghard seek to avoid. Also, Derr does not produce liquid hydrocarbons in his cracking step. Instead, liquid hydrocarbons are produced by oligomerization of olefins in a separate step. Indeed, because Derr has nothing to do with hydrodewaxing, it appears that the Examiner is merely selecting bits and pieces of Derr totally out of context in an attempt at hindsight reconstruction of applicant's invention. Not only is that improper, but it also fails because there is nothing in Derr to overcome the basic deficiencies of the primary references.

The Applicant's argument is not persuasive because Derr discloses, "In the dewaxing process, a small pore zeolite or a shape-selective zeolite such as ZSM-5 is used as the acidic component ..... The paraffiniic waxy component will therefore be converted and thus lower the pour point of the product....." (Column 6, lines 29-45 and 46-66; column 7, lines 3-10). Derr further discloses, "When waxy liquid feedstock

such as FT waxes are hydrocracked with a large pore catalyst such as zeolite Y in combination with a hydrogenation component, the viscosity of the oil is reduced by cracking most of the 343°C + material into material that boils at 343°C to 165°C (Column 6, lines 10-16).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is 571-272-6381. The examiner can normally be reached on MF 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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